沪制00000201号

TCD-to-FID Series Connection on a 6820 GC, Accessory G4319A

Installation Guide

The TCD-to-FID Series Connector connects output flow from a Thermal Conductivity Detector (TCD) to the column inlet of a Flame Ionization Detector (FID) to perform a second analysis of the same injected sample. Before following this procedure, refer to safety information at the end of this document.

- Both a TCD and a FID are required to use this accessory. If an ECD is present, or in a dual FID or TCD situation, the unneeded detector must be removed and replaced. To achieve a standard factory configuration, the TCD must be located in the **front** detector position.
- If you are installing a new FID at this time, refer to its installation document.
- If you are installing a new TCD at this time, it is important to read this document before doing so. Instructions here modify some TCD installation steps described in its installation document.

  Complete TCD hardware installation through all wiring connections. Then, when ready to insert the TCD block assembly into the oven, see *"Adjusting Vent Tubing and Reinstalling the TCD Block"* on page 6.
- Do not restore power and gases to the GC, or test its detectors, until after the TCD-to-FID series connector is installed.

Agilent Technologies

Parts list

- TCD-to-FID Series Connector assembly
- Swage nuts and ferrules

Tools

- Electrostatic protection such as a grounded wrist strap
- T-20 Torx screwdriver
- 7/16-inch wrench

Steps

1. Preparing the GC
2. Raising the TCD Block
3. Adjusting Vent Tubing and Reinstalling the TCD Block
4. Installing the TCD-to-FID Series Connector

Preparing the GC

1. Turn off the detectors.
2. Set the oven to 25 °C and turn off all other heated zones.
3. Turn off all carrier and detector gases at their sources.

NOTE Carrier gas flow must be maintained until the column has cooled to avoid column damage.

4. Turn off the main power switch.
5. Disconnect the power cord from the power source. Some internal parts carry power if the cord is connected.
6. Remove the column(s) and any associated hardware from inside the column oven.
7. Lift the hinged GC top cover at its front edge to expose the detector area. Remove the cover by raising it to vertical, lifting its left hinge pin from its bracket, and then sliding the cover to the left to free its right hinge pin.

Perform this procedure only if necessary to add a new detector, or to remove and replace an existing detector. Remove the panels indicated in the following steps. Note that if an existing detector is being completely replaced by a new detector, carefully store the old detector assembly and all associated parts in a safe place for possible future use.

1. Remove two screws along the lower edge of the left side (flow control) panel. Slide the panel slightly to the rear and lift it off.

CAUTION Electronic components can be damaged by static electricity: use a properly grounded static control wrist strap when removing the electronics panel.

2 In the same manner, remove two screws along the lower edge of the right side (electronics) panel. Slide the panel slightly to the rear and lift it off.

3 Remove the back panel by removing two screws at its bottom edge, loosening two screws at its top edge, and the lifting off the two top screws.

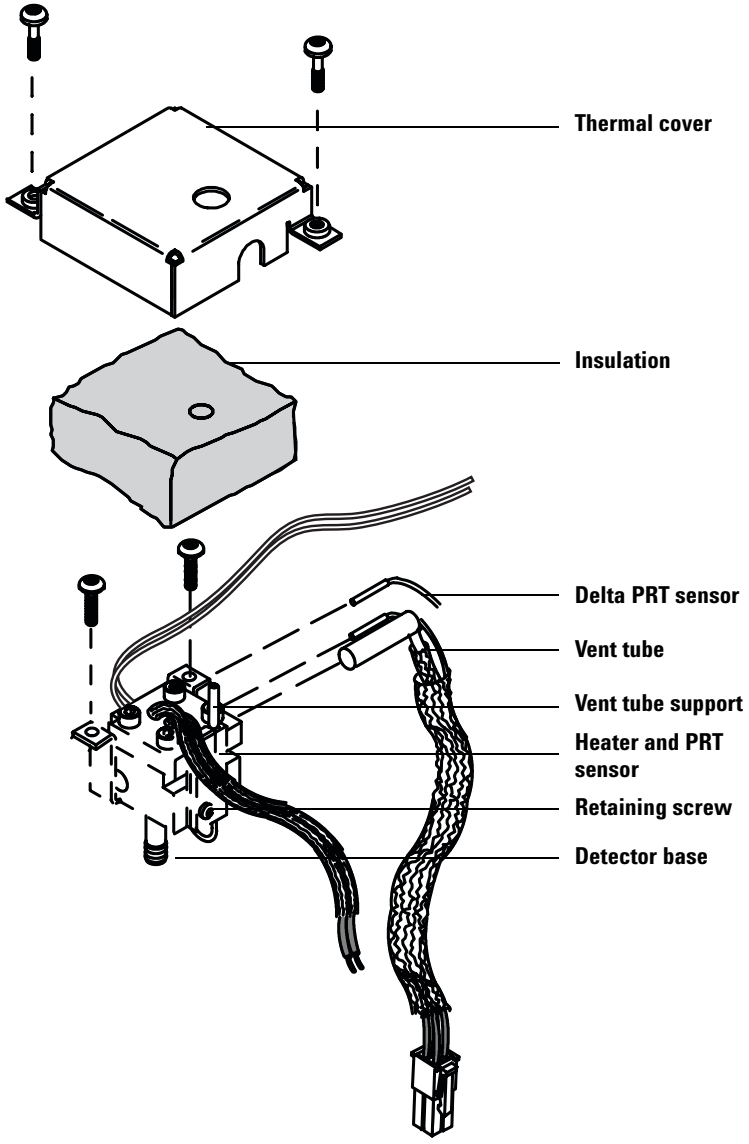
4 Finally, remove the rear top cover by removing four screws, two at each end.

Raising the TCD Block

1 Cap the detector base (column/makeup gas adapter connection).

2 Remove the detector thermal cover by removing two screws, one from each side of the cover.

3 Cap the vent tube at the top of the detector.



CAUTION GC insulation is made of refractory ceramic fibers. Ventilate your work area. Wear long sleeves, gloves, safety glasses, and a disposable dust/mist respirator. Dispose of unneeded insulation in a sealed plastic bag.

1 Carefully remove the preformed thermal insulation from around the detector block to expose two screws securing the block to the oven top. Remove the screws.

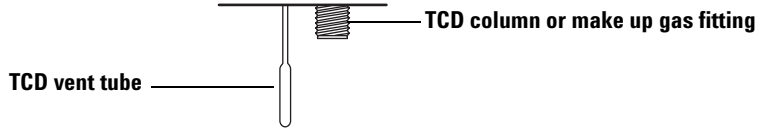
2 Carefully lift the block just enough to expose the vent tube support retaining screw.

3 Carefully slide the heater/sensor and Delta PRT sensor cartridges out of the block. Sensors (the small cartridges) must be handled carefully to avoid breakage.

Adjusting Vent Tubing and Reinstalling the TCD Block

1 Once the TCD block is removed from the oven enough to expose the screw securing the vent tube support, or before a new TCD block is installed into the top of the oven, remove the retaining screw securing the vent tube support and remove the support.

2 Carefully bend the vent tube downwards to be alongside the detector column / make up gas fitting. Align the tube so it fits into the small slot provided in the oven liner. Reinstall vent tube support with reversed orientation.



3 If installing a new TCD, continue with instructions in the TCD installation document through all wiring connections. When finished, continue with instructions below, *"Installing the TCD-to-FID Series Connector"* on page 8, in this document.

4 Reinstall heater and sensor cartridges into the block. It does not matter which sensor is placed in either of the two holes provided.

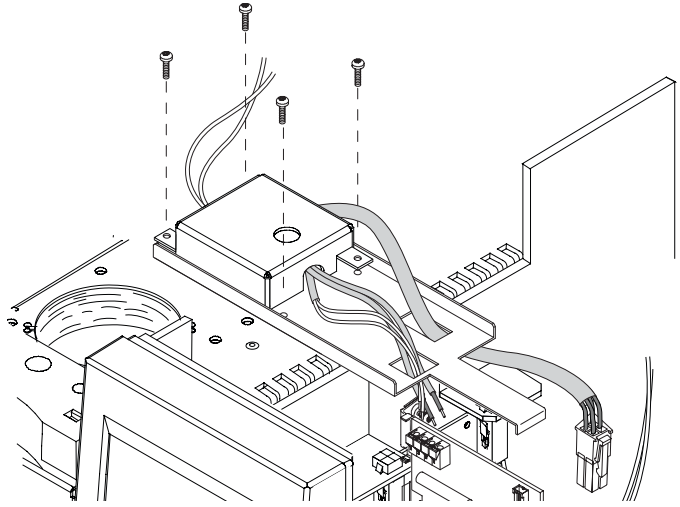
CAUTION When installing insulation, use care to not plug the vent tube. If flow is reduced or blocked when the TCD filament is switched on, its life may be shortened dramatically.

5 Carefully install the detector block, securing it to the oven top with two screws. While positioning the detector into the cavity, use insulation to pack around the bottom and sides of the detector. The goal is to fill all voids around the detector body as it is placed into the cavity.

6 Remove caps from the detector base and from the vent tube.

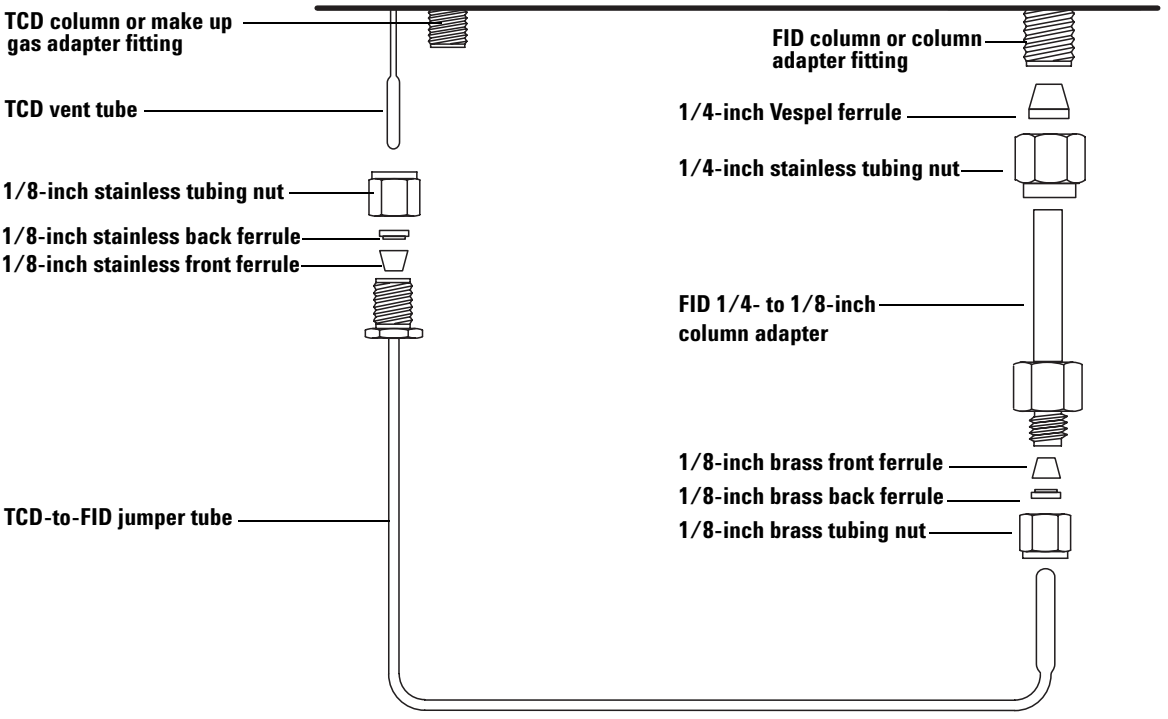
CAUTION Avoid crimping filament and sensor leads when installing the TCD thermal cover.

7 Install the detector thermal cover, securing it with its screws.



Installing the TCD-to-FID Series Connector

1. Working inside the oven, and following proper swaging procedures described in the 6820 *Getting Started* manual, use the 1/8-inch stainless tubing nut, back ferrule, and front ferrule to connect the TCD-to-FID jumper tube to the TCD vent tube. Use two wrenches against each other to avoid twisting the vent tube.
2. Use the 1/4-inch stainless tubing nut and Vespel ferrule to install the 1/4- to 1/8-inch adapter into the FID.
3. Again, following proper swaging procedures, use the 1/8-inch brass tubing nut, back ferrule, and front ferrule to connect the TCD-to-FID jumper tube to the FID 1/4- to 1/8-inch adapter.


TCD column or make up gas adapter fitting
TCD vent tube
1/8-inch stainless tubing nut
1/8-inch stainless back ferrule
1/8-inch stainless front ferrule
TCD-to-FID jumper tube
FID column or column adapter fitting
1/4-inch Vespel ferrule
1/4-inch stainless tubing nut
FID 1/4- to 1/8-inch column adapter
1/8-inch brass front ferrule
1/8-inch brass back ferrule
1/8-inch brass tubing nut

4 Restore gas supplies and, following leak test procedures described in the *Maintenance and Troubleshooting* manual, check for leaks, particularly at all new connections.

Agilent Technologies

Notices

© Agilent Technologies, Inc. 2003

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Agilent Technologies, Inc. as governed by United States and international copyright laws.

Manual Part Number

G4319-90000

Edition

First edition, July 2003

Printed in China

Agilent Technologies, Inc.
412 Ying Lun Road
Waigaoqiao Free Trade Zone
Shanghai, 200131 P. R. China

Safety Notices

CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

G4319-90000